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ABSTRACT

The purpose of this study was to assess healthy behavior recognition in Head Start, preschool children through picture identification. Participants in the study were 172 children in 7 Head Start centers, in 3 counties in Central Texas. The testing instrument was a booklet containing 30 questions, with 3 pictures per question, of which 1 represented a healthy behavior. Answers were recorded on score sheets by trained observers. Analyses were conducted on differences between gender, ethnicity, and age. Seventy-nine males (46 percent) and 93 females (54 percent) completed the project. The mean correct response for males was 15.9 items, with females averaging 16.2 correct items. Fifty-one 3-year-olds (29.7 percent), 90 4-year-olds (52.3 percent), and 31 5-year-olds (18 percent) participated in the project. The mean correct response for the 3-, 4-, and 5-year-old subjects was 10.9, 17.7, and 19.6 respectively. Twenty-six percent of subjects (n=44) were Caucasian with a mean correct score of 18.7. Hispanic subjects (n=107) represented 62 percent of the population with a mean correct response of 15.1. Twelve percent of the subjects (n=21) were African-American with a mean correct response of 15.5 percent. Analysis of variance indicated significant differences between ethnic groups and age groups. Baseline data from this study can be used to plan and provide health instruction to preschool children, thus expanding the comprehensive school health model to the preschool population. (Contains 16 references.) (Author/ND)

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ASSESSING HEALTHY BEHAVIOR RECOGNITION IN PRESCHOOL, HEAD START CHILDREN

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Abstract

The purpose of this study was to assess the healthy behavior recognition in Head Start, preschool children through picture identification. One hundred and seventy two children, in seven Head Start centers, in three counties in Central Texas participated in the study. The testing instrument was a booklet containing 30 questions, with three pictures per question, of which one picture represented a healthy behavior. Answers were recorded on score sheets by trained observers. Analyses were conducted on differences between gender, ethnicity, and age. Seventy nine males (46%) and 93 females (54%) completed the project. The mean correct response for males was 15.9 items, with females averaging 16.2 correct items. Fifty one three year olds (29.7%), 90 four year olds (52.3%), and 31 five year olds (18%) participated in the project. The mean correct response for the three, four, and five year old subjects was 10.9, 17.7, and 19.6 respectively. Twenty six percent (n=44) of subjects were Caucasian with a mean correct score of 18.7. Hispanic subjects represented 62% (n=107) of the population with a mean correct response of 15.1. Twelve percent (n=21) of the subjects were African-American with a mean correct response of 15.5%. Analysis of variance indicated significant differences between ethnic groups ($p<0.001$), and age groups ($p<0.000$). Baseline data from this study can be used to plan and provide health instruction to preschool children, thus expanding the comprehensive school health (CSH) model to the preschool population.

Assessing Healthy Behavior Recognition in Preschool, Head Start Children

Introduction

Research has indicated that healthy habits established in childhood can progress into healthy habits in adulthood (Leaf & Hallaq, 1992; Mathers, 1993; Green & Bird, 1986). If healthy habits start at a young age, they can minimize the risk of chronic diseases and other health problems later in life (Stone, 1985). Determining baseline data pertaining to healthy behavior recognition can provide information useful for focusing on the health needs of young children. Children at the preschool level are not too young to start learning about healthy behaviors because these children are capable of learning health habits through simplistic instructional methods. At this young age, children have the ability to identify items that promote health and growth (Leins, 1993).

Preschool children are an important age group to target for teaching healthy behaviors. Hendricks and Smith (1983) reported that values and behaviors are formed in early childhood and that promotion of a healthy lifestyle should begin in preschool. Prevention of unhealthy habits can be started at a young age. Stone (1985) has suggested that the known relationship between unhealthy lifestyle habits and chronic disease provides adequate reason to focus prevention efforts on preschool children.

Children at the preschool level are old enough to learn health concepts. Health education should be provided at the appropriate cognitive level of the child. It is important for parents, caregivers, educators, and researchers to understand if young children know the difference between health and illness, and how each affects them (Green & Bird, 1986). Recognizing this relationship can lead to better education of children on health concepts that may currently be unknown or misunderstood.

Establishing healthy habits in childhood may lead to healthy habits in adulthood (Green & Bird, 1986). Mathers (1993) and Perry et al. (1987), report that people who maintain life-long healthy eating and exercise habits will provide themselves with a decreased chance of developing obesity, heart disease, high blood pressure, cancer, diabetes, and osteoporosis as adults. Children tend to keep the same eating and exercise

habits throughout life, therefore learning to make sound nutritional choices early is an important component to wellness as an adult. People who have healthy habits as children have a better chance of maintaining appropriate body composition and preventing chronic diseases and other health problems (Mathers, 1993). Settings conducive to learning these healthy habits are available in schools and, as a result, school-based programs can provide a proper learning environment to teach healthy behaviors (Perry, Mullis & Maile, 1985).

Health-related knowledge should be assessed early in life so that healthy habits may become established (Hendricks, Peterson, Windsor, Poehler, & Young, 1988). Health education is a major component of preventive medicine, which is less expensive than curative medicine (Hendricks & Smith, 1983). Preschool children are capable of learning and understanding basic health instruction, while establishing the foundation for lifetime habits. The healthy habits can benefit their future health in many ways (Mathers, 1993).

Several health concerns pertain primarily to preschool children. Children, three-years old and younger, are vulnerable to infectious disease due to an underdeveloped immune system which is not fully resistant to bacteria. As a result, children in the preschool setting are at risk for contracting diseases and spreading them among caregivers and other children. Caregivers are vulnerable to diseases such as the cytomegalovirus, hepatitis A, and Haemphilus influenza type B which can be transmitted from an infected child. Daily interaction by children at this stage of development involves touching other people and objects which could carry harmful bacteria (Kendall & Moukaddem, 1992).

Lack of immunizations and high injury rates are other examples of health problems. In the United States, 60% of two year olds have not been properly immunized against the most common childhood diseases (Elmer-Dewitt, 1994). Injuries and accidents have high incidence rates in the preschool population. The leading cause of death among children is due to accidents. In 1991, over 500 childhood deaths in Texas were due to accidents (Texas Kids Count, 1994). It is important to prevent all injuries, but especially those leading to extended medical care, disability, and premature death (Sacks, 1993).

As children grow older, prevention of other diseases will become important. Noncommunicable diseases such as heart disease, stroke, cancer, and chronic respiratory infection are the cause of 80% of deaths in developed countries ("Health For," 1992), with cardiovascular disease being the leading cause of death among Americans (Leaf & Hallaq, 1992). Poor diet, lack of exercise, and high stress levels are some modifiable behavioral factors that increase the risk of cardiovascular disease. Children who participate in healthy behavioral habits at a young age can decrease their chance of developing cardiovascular disease as an adult (Mathers, 1993).

Healthy habits provide a foundation for quality health. Prevention of some diseases can be achieved through healthy living. Many childhood diseases and the leading causes of death in adulthood can be decreased with the promotion of health ("Health For," 1992). The sooner a child is exposed to formal health education efforts, the greater the opportunity for establishing healthy habits early in life. Using the preschool curriculum to focus on health education can also assist parents in recognizing the importance of fostering healthy lifestyles at home. Therefore, the purpose of this study was to establish baseline data by assessing the healthy behavior recognition in Head Start, preschool children through picture identification.

Subjects

Seven Head Start sites in three central Texas counties participated in the study. These sites were representative of Head Start children throughout the country because of the standardized criteria required to be admitted into the program. The Head Start program was chosen because of the representation of low socio-economic children, therefore, all of the children came from similar financial backgrounds.

One hundred and seventy two subjects were assessed, with 79 males (45.9%) and 93 females (54.1%) comprising the subject pool. Fifty-one children (29.6%) were three years old, 90 children (52.3%) were four years old, while 31 children (18.0%) were five years old.

One hundred and seven children (62.2%) were Hispanic, 44 children (25.6%) were Caucasian, with 21 children (12.2%) being identified as African-American. Parental consent was obtained for each subject prior to testing.

Instrumentation

The testing instrument was obtained from the primary investigator of a similar study. The instrument's stability using Pearson's r was 0.89 and the internal consistency was estimated to be 0.83 using the Kuder-Richardson 21 formula. The instrument was a spiral bound booklet containing two sample (i.e. practice) questions, 30 test questions, with three picture options per question, and the text to be read by the observer (See Figure 1). The content addressed by the 30 items included the ten health content areas recommended by the National Center for Health Education (Hendricks et al., 1988).

Methodology

Three health education graduate students were trained using the booklet and the testing protocol. Test administration began after the testing observer had the testing area ready (test booklet open with chairs facing each other with a table between observer and subject). The observer explained the testing procedure to the child and gave two practice questions which were not included in the score. The observer determined if the child understood the procedure by the child's response to the sample questions. The sample questions were easier than the actual test question because the sample pictures were markedly dissimilar (See Figure 2). If the child did not appear to understand, the observer repeated the instructions and covered the sample questions again until the child understood. When the child was ready to begin the testing procedure, the observer asked the first question and continued through question 30.

The observer read the question twice while pointing to the three pictures, one at a time. The observer waited for the child's response and recorded it with a check on the appropriate space on a standardized answer sheet. Throughout the testing procedure, the observer did not indicate the correct response. The observer verbally encouraged the child after each response, regardless of the answer. The observer made comments such as, "great job" and "keep up the good work".

One observer was Spanish speaking and gave the test, using the instrument translated to Spanish, to those children who were unable to understand the English version of the test. The primary investigator relied

on the Head Start directors to indicate which children required the Spanish version.

At the completion of the testing, computer scanning sheets were completed for all answer sheets. The computer sheets were coded to label school site, age, gender, and ethnicity. Comparisons were made on the mean scores between age, gender, and ethnicity, with statistical significance being determined through the use of t-tests and analysis of variance (ANOVA). Post-hoc analyses were used when appropriate.

Results

The average number of correct responses was 16, with each child answering a minimum of five items correctly out of 30. The maximum number of correct items was 28 out of 30 (two subjects). Fifty seven subjects (33.1%) answered 5-13 items correctly, 83 subjects (48.3%) answered 14-21 items correctly, while 32 (18.6%) answered 22-28 correctly.

The three-year olds had a mean response of 10.9 correct items (36%). The four-year olds had a mean response of 17.7 correct items (59%), while the five-year olds averaged 19.6 correct items (65%) . Analysis of Variance indicated a significant difference by age ($p < 0.00$, $F = 50.67$) (See Table 1). Post hoc analyses revealed that a significant difference existed in an order of magnitude of five year olds differing significantly from the four and three year olds, while four year olds differed significantly from three year olds .

Caucasian subjects answered an average of 18.7 items (62%) correctly, Hispanic subjects answered an average of 15.1 items (50%) correctly, while African-American subjects answered an average of 15.5 items (52%) correctly. Analysis of Variance indicated that a significant difference existed between ethnic groups ($p < 0.001$, $F = 7.18$) (See Table 2). Post hoc analyses showed that Caucasian students scored significantly higher than did African-American and Hispanic students.

Female subjects averaged 16.2 correct responses (54%), with males averaging 15.9 correct responses (53%). Analysis of variance showed that there were no significant differences between gender ($p < 0.749$, $f = 0.103$) (See Table 3).

Discussion

This study examined the healthy behavior recognition in preschool, Head Start children through picture identification. The testing instrument used in the study had an alpha coefficient of 0.8033. Removing items did not significantly increase the alpha coefficient. Thus, all 30 items remained in the study. Due to this high alpha coefficient, this instrument is a stable tool in assessing the picture recognition abilities of preschool children.

The five year old group scored significantly higher than the three and four year old groups. This significance may be explained by the difference in cognitive development in young children. Most of the five year olds were at a higher stage of cognitive development and thus, may have been better able to distinguish between the three pictures. Some of the younger subjects may not have been at a high enough cognitive level to perform the test adequately. Some questions may have been too difficult for them to understand or the pictures might have been too complicated to interpret.

It might also be suggested that the five year olds have experienced and learned more than the younger children involved in the study. These results might imply that as children approach five years of age, formal health instruction should begin. This instruction could provide a solid foundation of basic health knowledge as these children enter kindergarten.

Although a significant difference was found between ethnicity, the disparate number in representation among the ethnic groups could account for much of this difference. In addition, although statistical differences were observed, the practical significance may be more noteworthy. There existed only a two to three question difference in the average number of correct answers among the three ethnic groups. Therefore, the evidence suggests that the raw scores did not vary to any great degree to imply an ethnic difference between the groups.

No difference was observed between subject gender in this study. Therefore, there is no indication that males or females have any particular learning advantage over the other group.

Recommendations

Results of this study highlight the need for Head Start practitioners, as well as any other early childhood education professionals, to include health education as a part of the curriculum. Because of the low socioeconomic status (SES) of these children, it might be suggested that these children should be targeted specifically for health education instruction. The low SES might put these children at a disadvantage for access to early, primary preventive care available to other children. Providing early awareness of health and healthy lifestyles to this group of children might prove beneficial later in life. The obvious implication, therefore, is that staff members should be trained in the delivery of age-appropriate, sequential health education instruction to these preschool populations.

The concept of comprehensive school health (CSH) programming is based on an eight step model which includes health instruction, school health services, food services, physical education instruction, guidance and counseling services, school environment, staff health promotion, and school and community involvement (Allensworth & Kolbe, 1987). Although this model is theoretically designed as a K-12 intervention, there is no reason that the same principles cannot be implemented with preschool populations. For in fact, many, if not all, of the eight components of CSH exist in many Head Start and other preschool facilities. The key is to organize and structure these components in order ensure a sequential program, instead of the fragmentation of services which commonly occurs.

Research has demonstrated that one's health behaviors begin early in life. Health instruction should be included as a part of the preschool curriculum because health education easily fits into the active learning environment that the preschool curriculum facilitates. Learning about one's body and the relationship that one has with his/her surroundings is a natural consequence of childhood learning. Just as one goal of Head Start is to prepare children to learn as they begin kindergarten, an additional goal should be to prepare them to live healthy lives as they begin school. Therefore, health education and promotion should be specifically included in Head Start's goals and objectives.

Paramount to teaching children about health education is staff development. Ongoing inservice programs can be developed to prepare

teachers to instruct children in basic health concepts. Head Start personnel should have the opportunity to forge coalitions with local school districts to attend health education staff development.

This focus on health education can also serve to alert parents to the importance of healthy lifestyles. Because small children have little control over their personal health status and the choices related to their health, educational efforts must target the parents as well. Thus, the preschool setting serves as a catalyst not only for the basic developmental skills needed by preschool children, but also for the delivery of health education materials. Health instruction in the home is needed for all children to complement school based instruction. To establish healthy habits, the child's total environment requires a consistent, age-appropriate health promotion effort. As a result, Head Start should begin or continue to include health instruction with parents through formal parenting classes, as well as with other more informal methods (i.e. newsletters, health posters in the facility, etc.).

Health care providers in the community can also assist with preschool health education efforts. A consortium of physicians, nurse, nutritionists, professional health educators, and college and high school students can work together to provide health education services for Head Start children. Local schools and community organizations should form coalitions to design and implement programs and activities specifically benefiting young children, as well as the community as a whole.

Summary

The Healthy People 2000 Report ("Healthy People", 1990) has established specific, measurable health promotion and disease prevention objectives for the United States to achieve by the turn of the century. One of the strategies mentioned to achieve these objectives is health education in school settings. Clearly, formalized health education instruction prior to kindergarten would only serve to enhance the health of children, as well as to contribute to the well-being of the nation.

Health education instruction should become a formalized, planned event during the day of instruction for preschool children. Too often health instruction is seen as a "rainy day" event which has no real "home" in the

planned curriculum. The link between a child's health and his/her learning ability is crucial, as a healthy child learns better.

Health educators and preschool educators should work together to provide current information and skills to children and their parent(s). As a society, we have maximum health expectations for our population, yet we only provide minimal training. Health education efforts with preschoolers are one way to begin to reverse such a trend as we move into the 21st century.

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